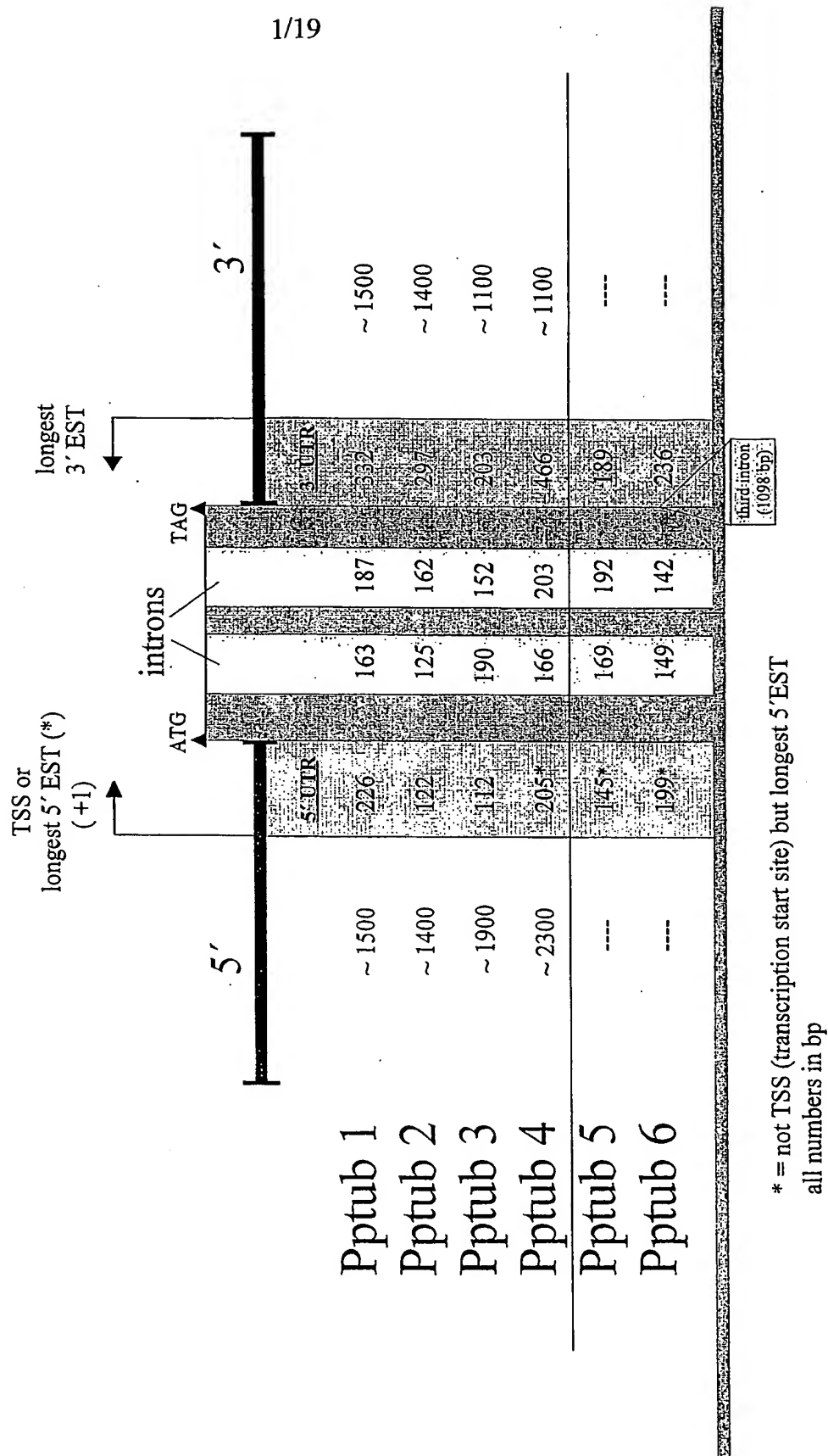
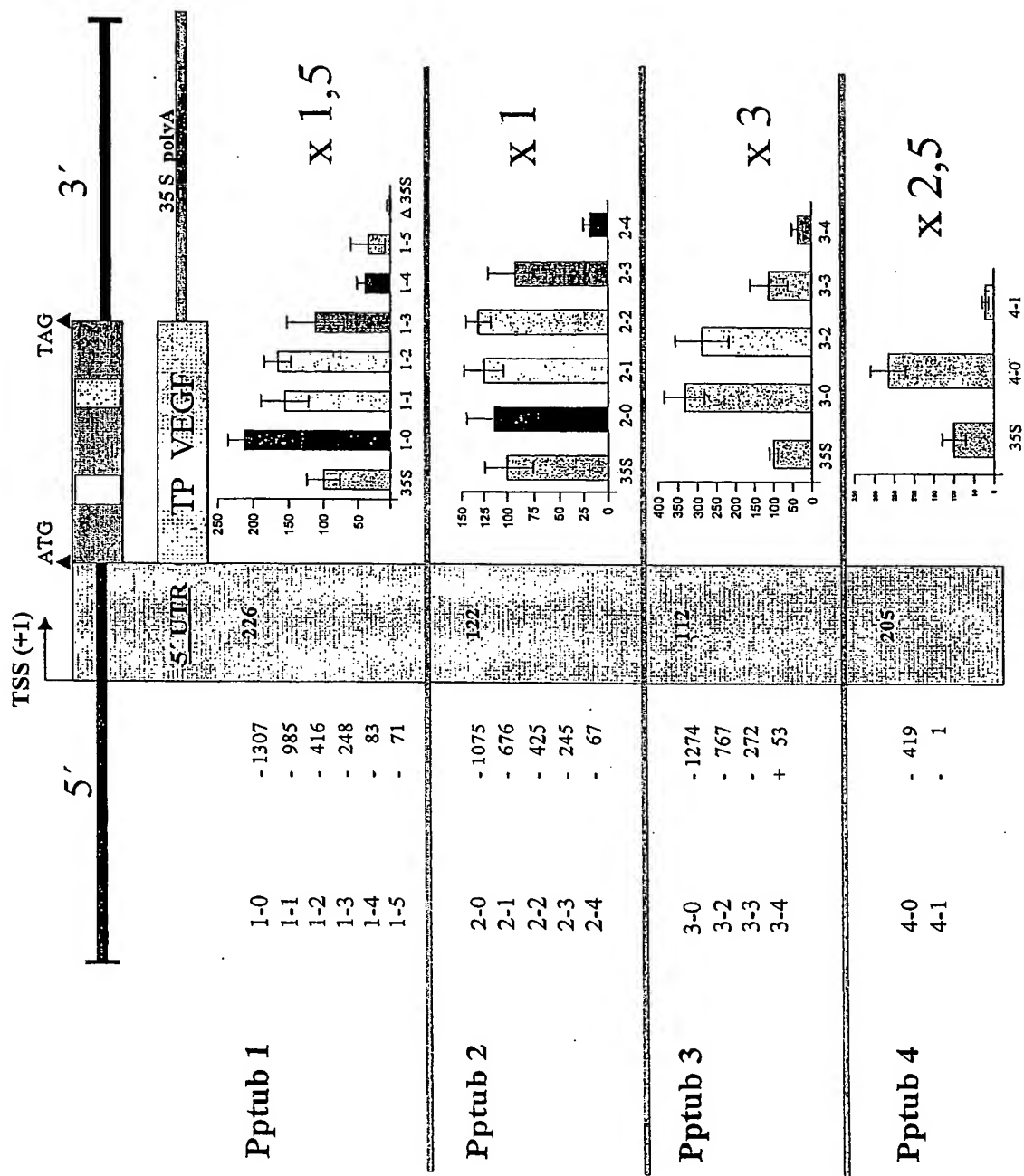


Fig. 1:  $\beta$ -tubulin genes in *Physcomitrella patens*



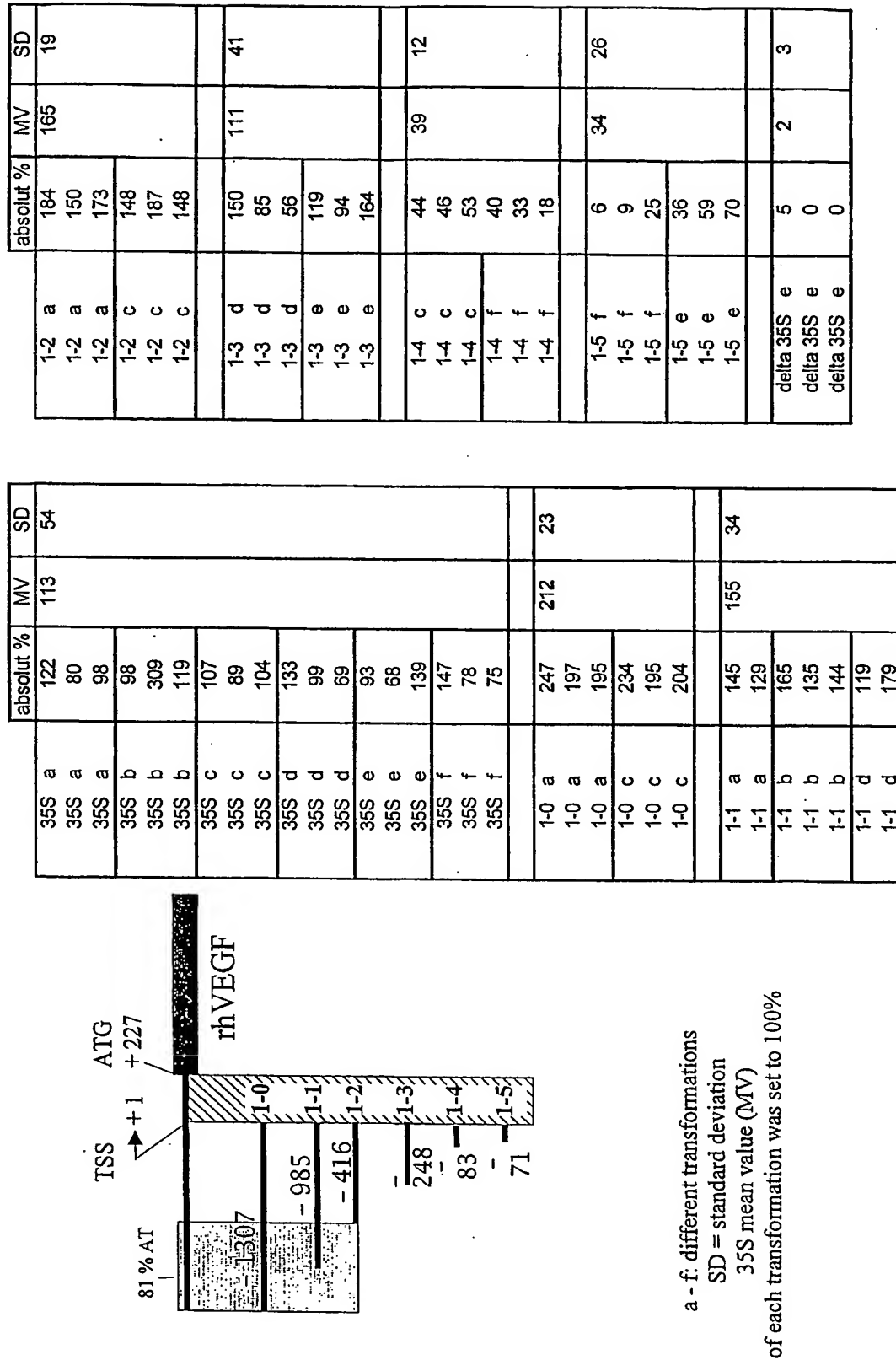
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Fig. 2: Analysis of expression promoting regions of  $\beta$ -tubulins in *Physcomitrella patens*



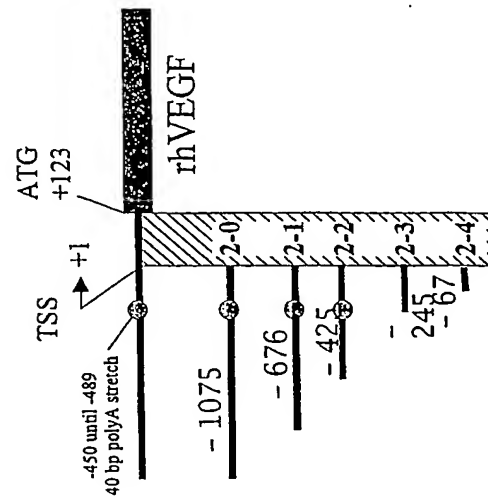
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Fig. 3: Analysis of expression promoting regions of Pptub 1 by transient transformation of rhVEGF constructs



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Fig. 4: Analysis of expression promoting regions of Pptub 2  
by transient transformation of rhVEGF constructs



|        | absolut % | MV  | SD |
|--------|-----------|-----|----|
| 35S a' | 113       | 100 | 19 |
| 35S a  | 87        |     |    |
| 35S b  | 102       |     |    |
| 35S b  | 119       |     |    |
| 35S b  | 80        |     |    |
| 35S c  | 84        |     |    |
| 35S c  | 116       |     |    |
| 35S f  | 70        |     |    |
| 35S f  | 120       |     |    |
| 35S f  | 114       |     |    |
| 35S g  | 127       |     |    |
| 35S g  | 97        |     |    |
| 35S g  | 76        |     |    |
| 2-0 a  | 134       | 113 | 31 |
| 2-0 b  | 82        |     |    |
| 2-0 b  | 160       |     |    |
| 2-0 b  | 119       |     |    |
| 2-0 c  | 104       |     |    |
| 2-0 c  | 78        |     |    |
| 2-1 a  | 155       | 125 | 22 |
| 2-1 a  | 132       |     |    |
| 2-1 b  | 98        |     |    |
| 2-1 b  | 99        |     |    |
| 2-1 c  | 137       |     |    |
| 2-1 c  | 129       |     |    |

|       | absolut % | MV  | SD |
|-------|-----------|-----|----|
| 2-2 a | 143       | 131 | 14 |
| 2-2 a | 115       |     |    |
| 2-2 b | 136       |     |    |
| 2-2 b | 141       |     |    |
| 2-2 b | 110       |     |    |
| 2-2 c | 143       |     |    |
| 2-2 c | 127       |     |    |
| 2-3 f | 69        | 92  | 28 |
| 2-3 f | 53        |     |    |
| 2-3 f | 127       |     |    |
| 2-3 g | 99        |     |    |
| 2-3 g | 117       |     |    |
| 2-3 g | 89        |     |    |
| 2-4 f | 17        | 18  | 7  |
| 2-4 f | 17        |     |    |
| 2-4 f | 16        |     |    |
| 2-4 g | 18        |     |    |
| 2-4 g | 8         |     |    |
| 2-4 g | 31        |     |    |

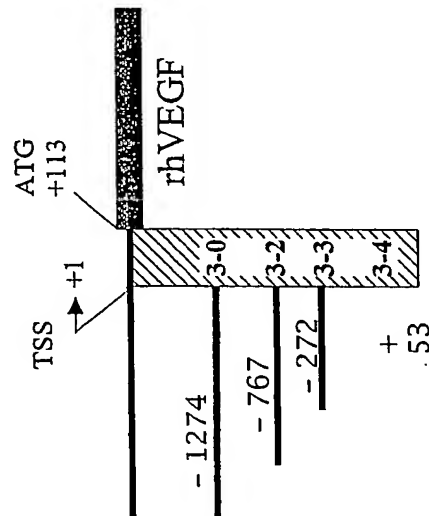
a - b, f and g: different transformations

SD = standard deviation

35S mean value (MV) of each transformation was set to 100%

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Fig. 5: Analysis of expression promoting regions of Pptub 3 by transient transformation of rhVEGF constructs



a - b, d and e: different transformations

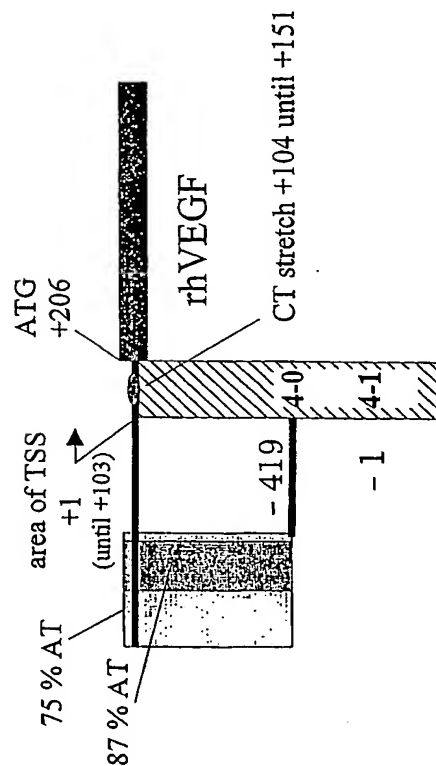
SD = standard deviation

35S mean value (MV) of each transformation was set to 100%

|       | absolut % | MV  | SD |
|-------|-----------|-----|----|
| 35S a | 100       | 100 | 11 |
| 35S a | 95        |     |    |
| 35S a | 105       |     |    |
| 35S b | 118       |     |    |
| 35S b | 81        |     |    |
| 35S b | 101       |     |    |
| 35S d | 94        |     |    |
| 35S d | 112       |     |    |
| 35S d | 94        |     |    |
| 35S e | 93        |     |    |
| 35S e | 89        |     |    |
| 35S e | 118       |     |    |
| 3-0 e | 293       | 332 | 52 |
| 3-0 e | 251       |     |    |
| 3-0 e | 353       |     |    |
| 3-0 b | 387       |     |    |
| 3-0 b | 330       |     |    |
| 3-0 b | 379       |     |    |
| 3-2 a | 231       | 287 | 69 |
| 3-2 a | 239       |     |    |
| 3-2 a | 247       |     |    |
| 3-2 b | 399       |     |    |
| 3-2 b | 348       |     |    |
| 3-2 b | 259       |     |    |
| 3-3 b | 138       | 112 | 49 |
| 3-3 b | 104       |     |    |
| 3-3 b | 191       |     |    |
| 3-3 d | 44        |     |    |
| 3-3 d | 96        |     |    |
| 3-3 d | 101       |     |    |
| 3-4 a | 27        | 37  | 15 |
| 3-4 a | 16        |     |    |
| 3-4 a | 46        |     |    |
| 3-4 b | 55        |     |    |
| 3-4 b | 50        |     |    |
| 3-4 b | 28        |     |    |

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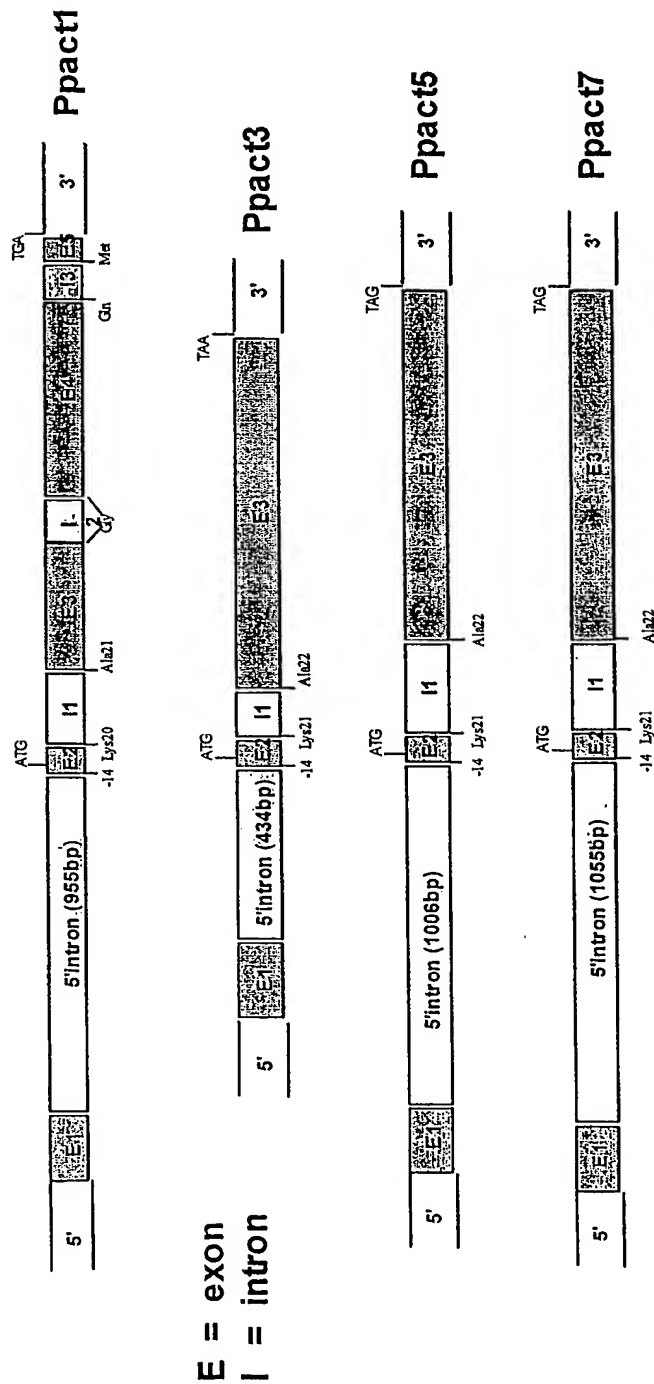
Fig. 6: Analysis of expression promoting regions of Pptub 4 by transient transformation of rhVEGF constructs



a and c: different transformations  
SD = standard deviation  
35S mean value (MV) of each transformation was set to 100%

|       | absolut % | MV  | SD |
|-------|-----------|-----|----|
| 35S a | 63        | 100 | 30 |
| 35S a | 95        |     |    |
| 35S a | 141       |     |    |
| 35S c | 70        |     |    |
| 35S c | 121       |     |    |
| 35S c | 109       |     |    |
| 4-0 a | 290       | 265 | 45 |
| 4-0 a | 322       |     |    |
| 4-0 a | 229       |     |    |
| 4-0 c | 210       |     |    |
| 4-0 c | 273       |     |    |
| 4-1 a | 25        | 20  | 8  |
| 4-1 a | 22        |     |    |
| 4-1 a | 5         |     |    |
| 4-1 c | 19        |     |    |
| 4-1 c | 30        |     |    |
| 4-1 c | 18        |     |    |

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#### 5'sequences resulting from iPCR:

- Ppact1: 2973 bp until ATG: 1824 bp promoter / 955 bp 5' intron  
 Ppact3: 3091 bp until ATG: 2270 bp promoter / 434 bp 5' intron  
 Ppact5: 3095 bp until ATG: 1909 bp promoter / 1006 bp 5' intron  
 Ppact7: 3069 bp until ATG: 1805 bp promoter / 1055 bp 5' intron

Fig. 7: Genomic structure of *Physcomitrella patens* actin genes.

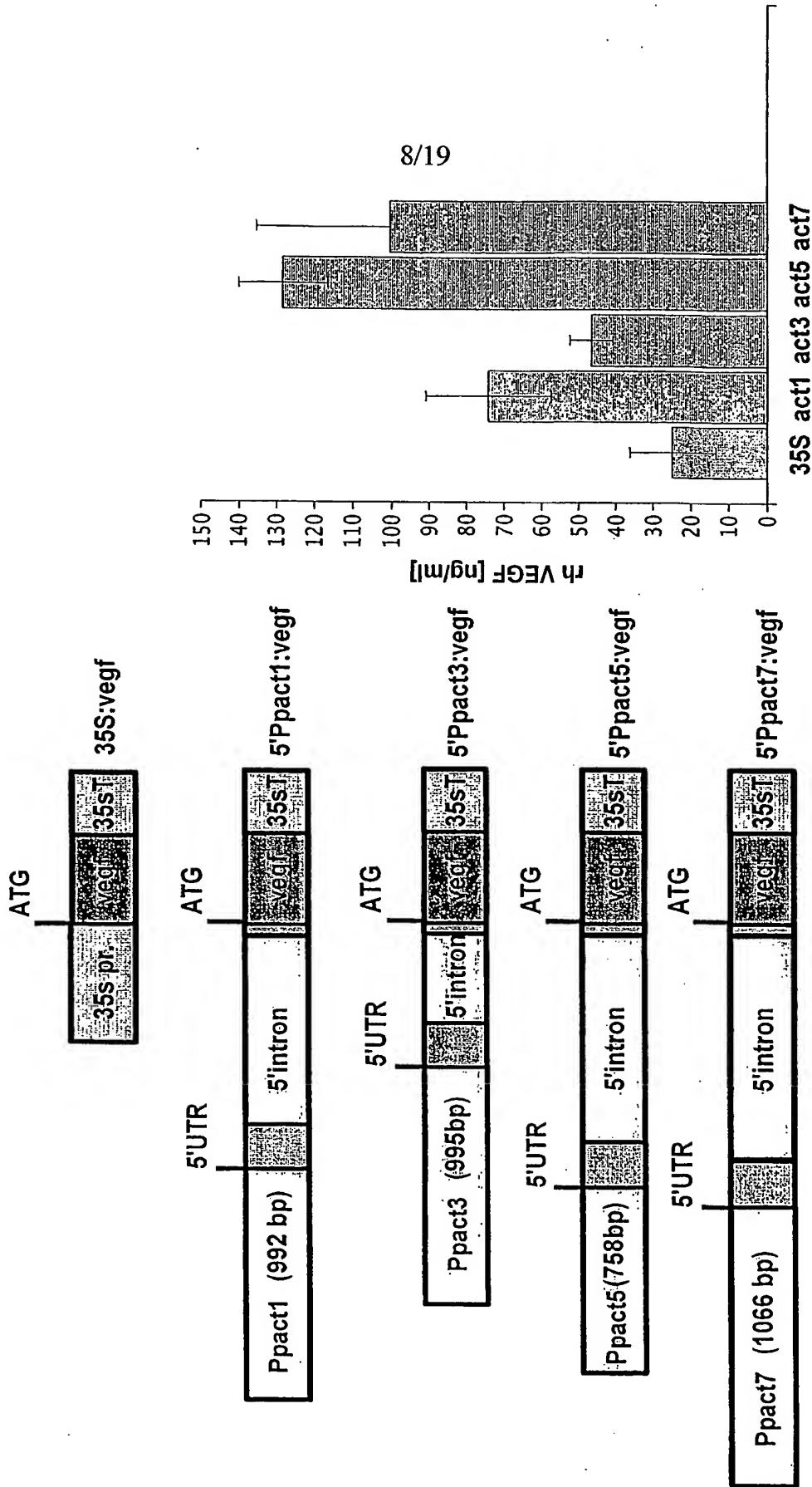


Fig. 8: Comparison of the expression activity of the different 5' actin regions.



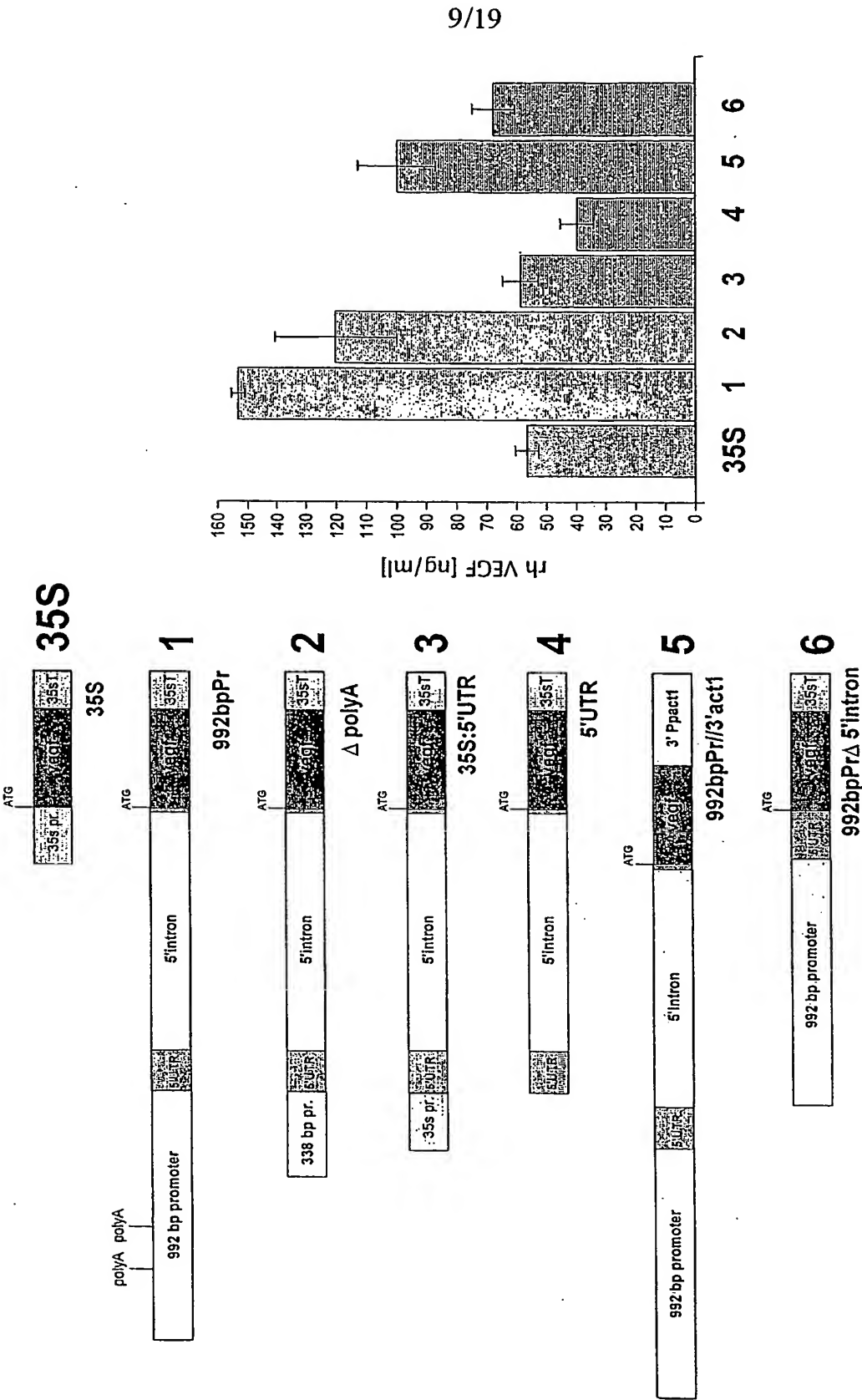


Fig. 9: Ppact1 constructs.

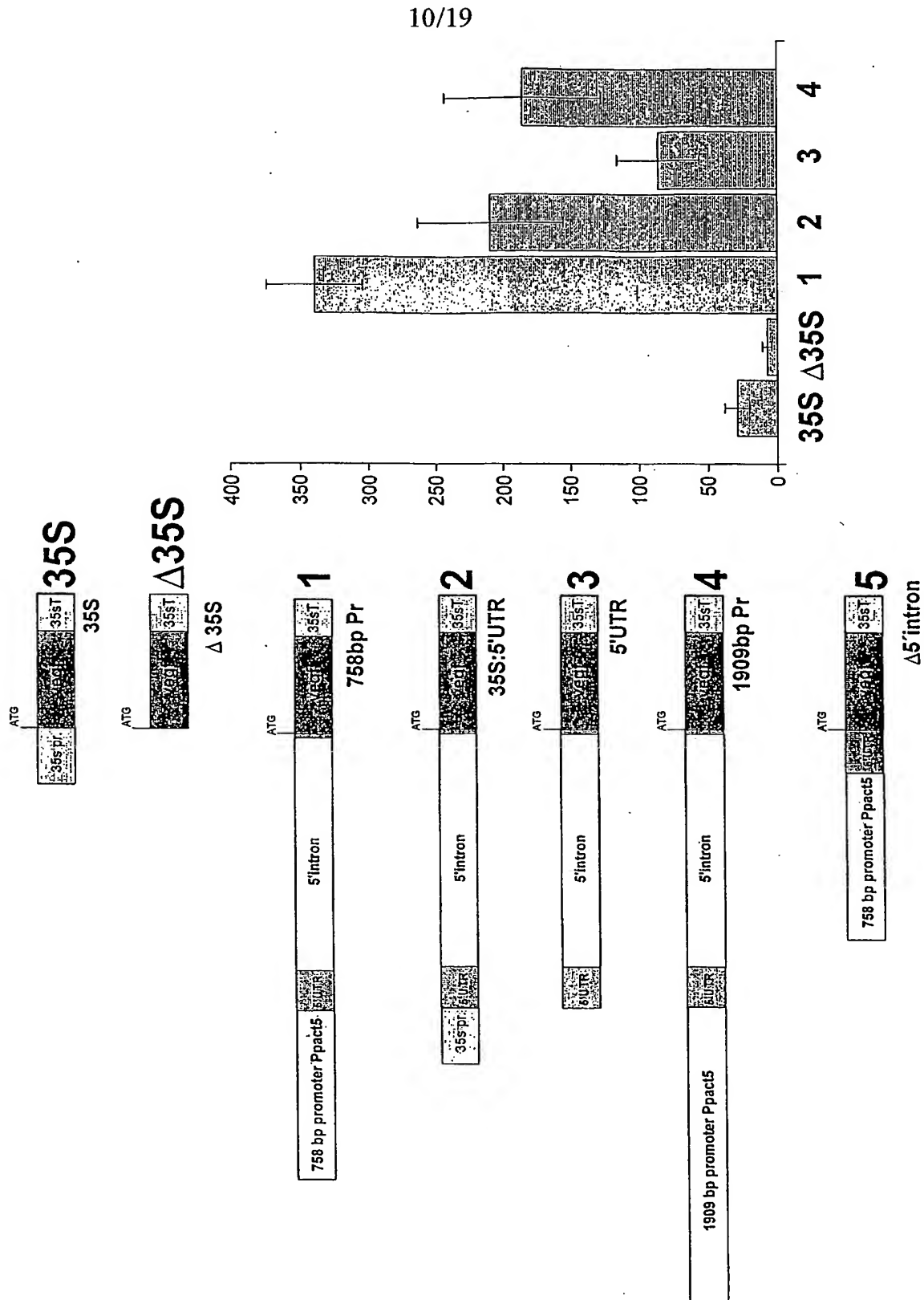


Fig. 10: Ppact 5 constructs.

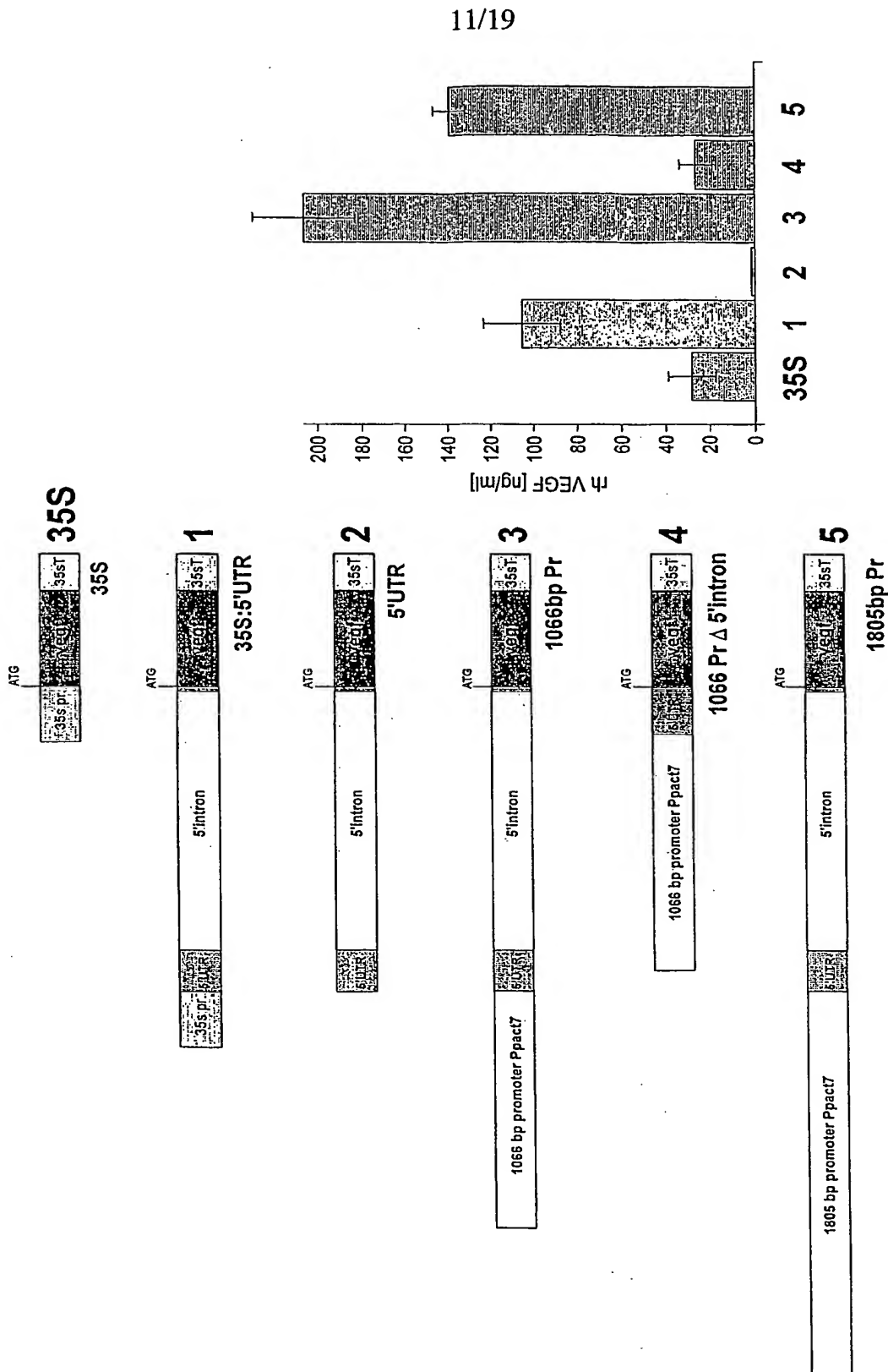


Fig. 11: Ppact 7 constructs.

| Time Point | rhVEGF (pg/ml) |
|------------|----------------|
| 35S        | ~2400          |
| 1          | ~4400          |
| 2          | ~5800          |
| 3          | ~7800          |
| 4          | ~6500          |

**Fig. 12: Pp act3::vegf constructs.**

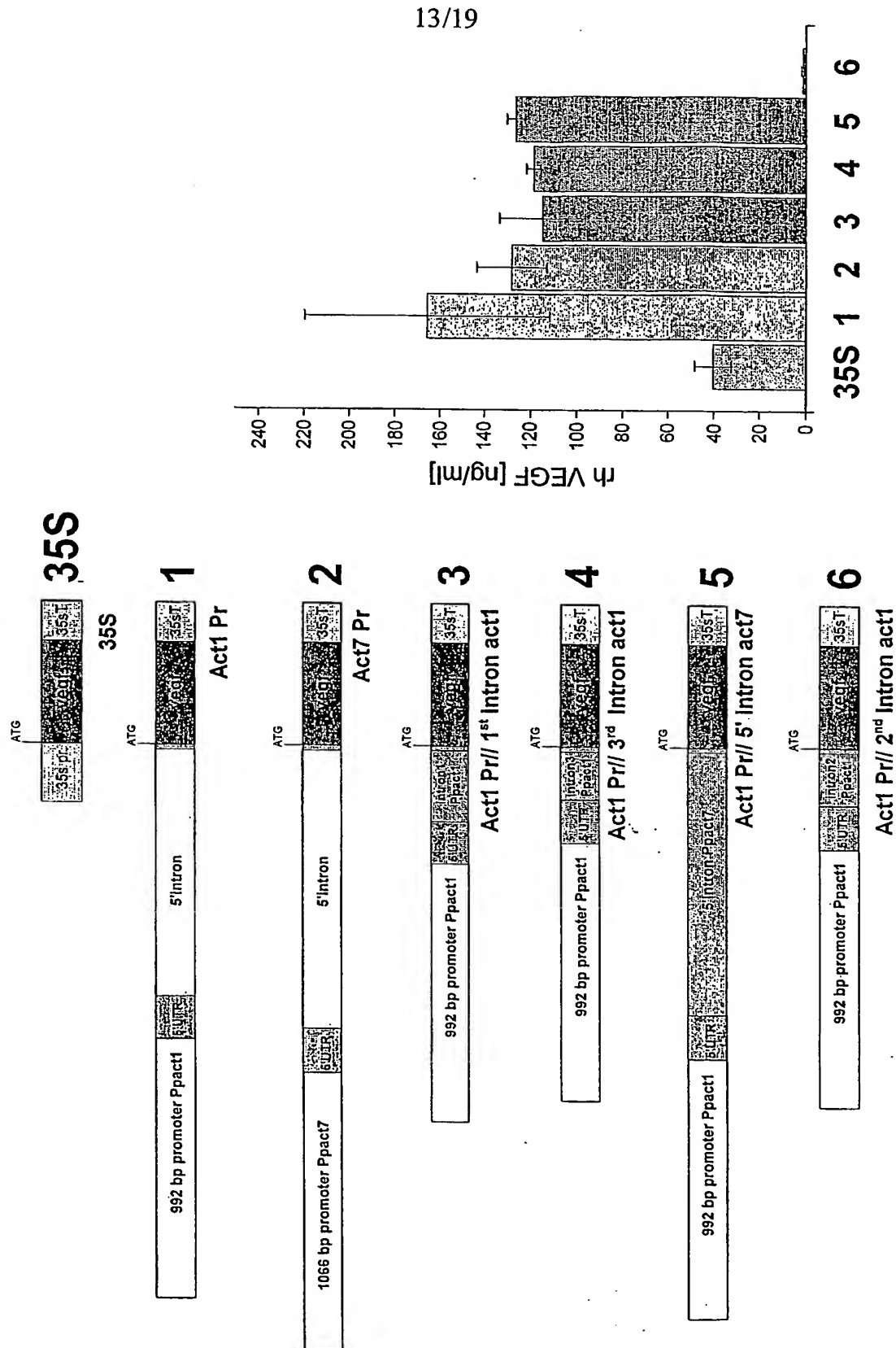
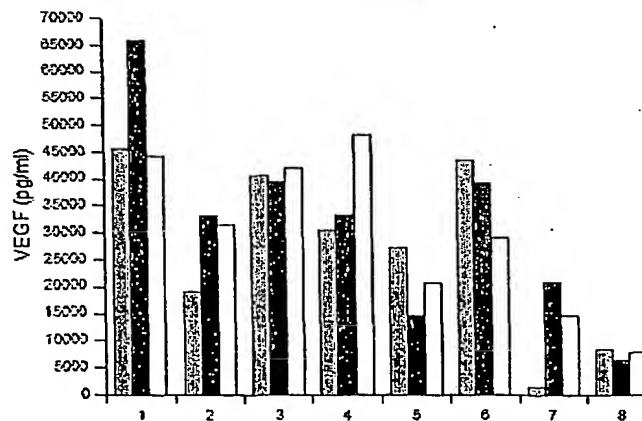
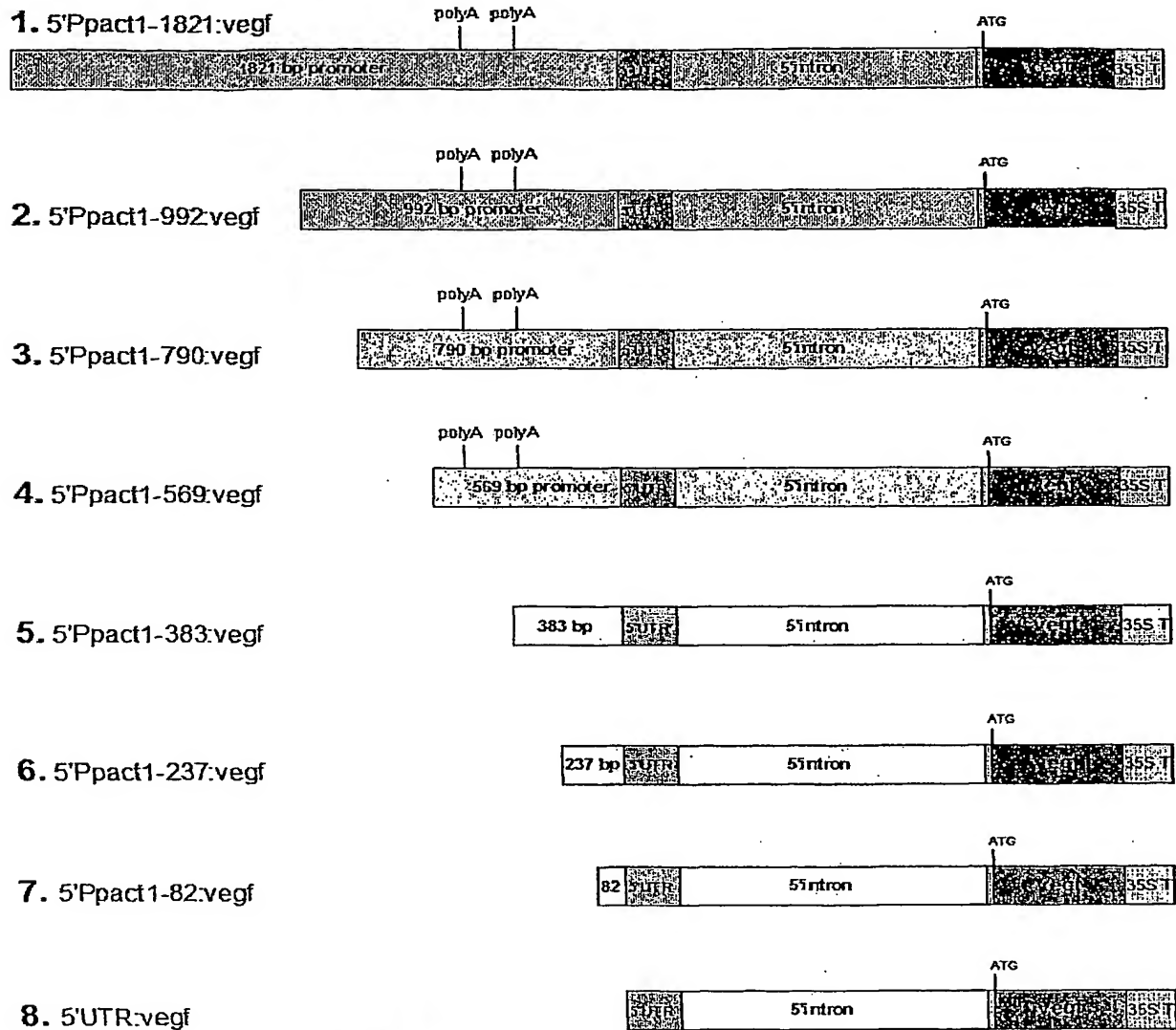


Fig. 13: Ppact1 promoter:5' intron substitutions.

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**Fig. 14: Ppact1 promoter:vegf deletion constructs.**



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**Fig. 15: Ppact3 promoter:vegf deletion constructs.**

1. 5'Ppact3-2208:vegf



2. 5'Ppact3-992:vegf



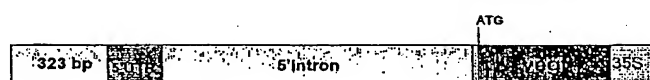
3. 5'Ppact3-821:vegf



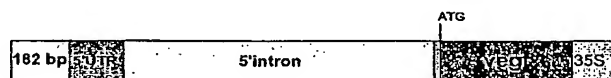
4. 5'Ppact3-523:vegf



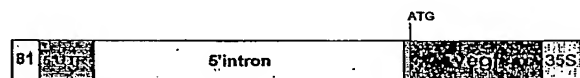
5. 5'Ppact3-323:vegf



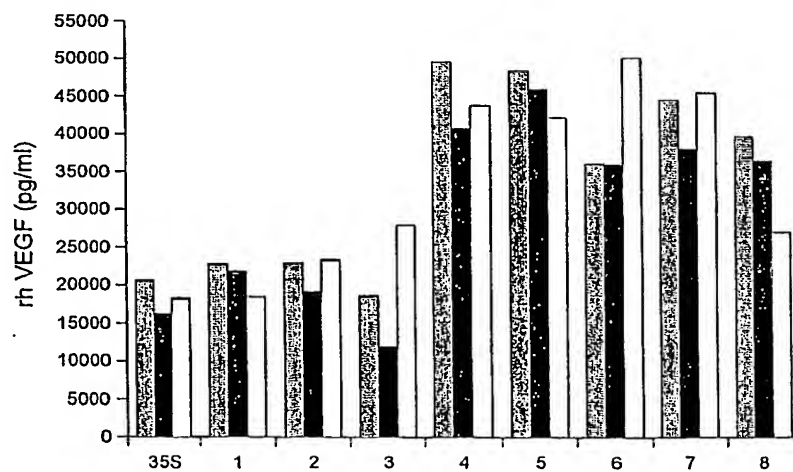
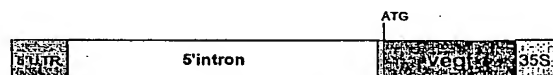
6. 5'Ppact3-182:vegf



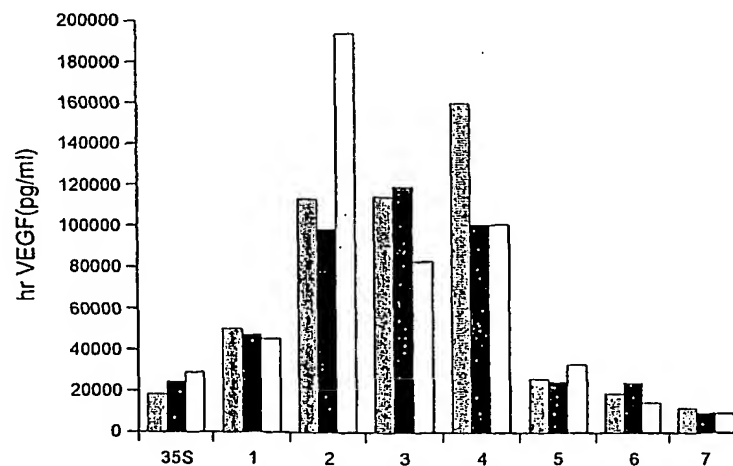
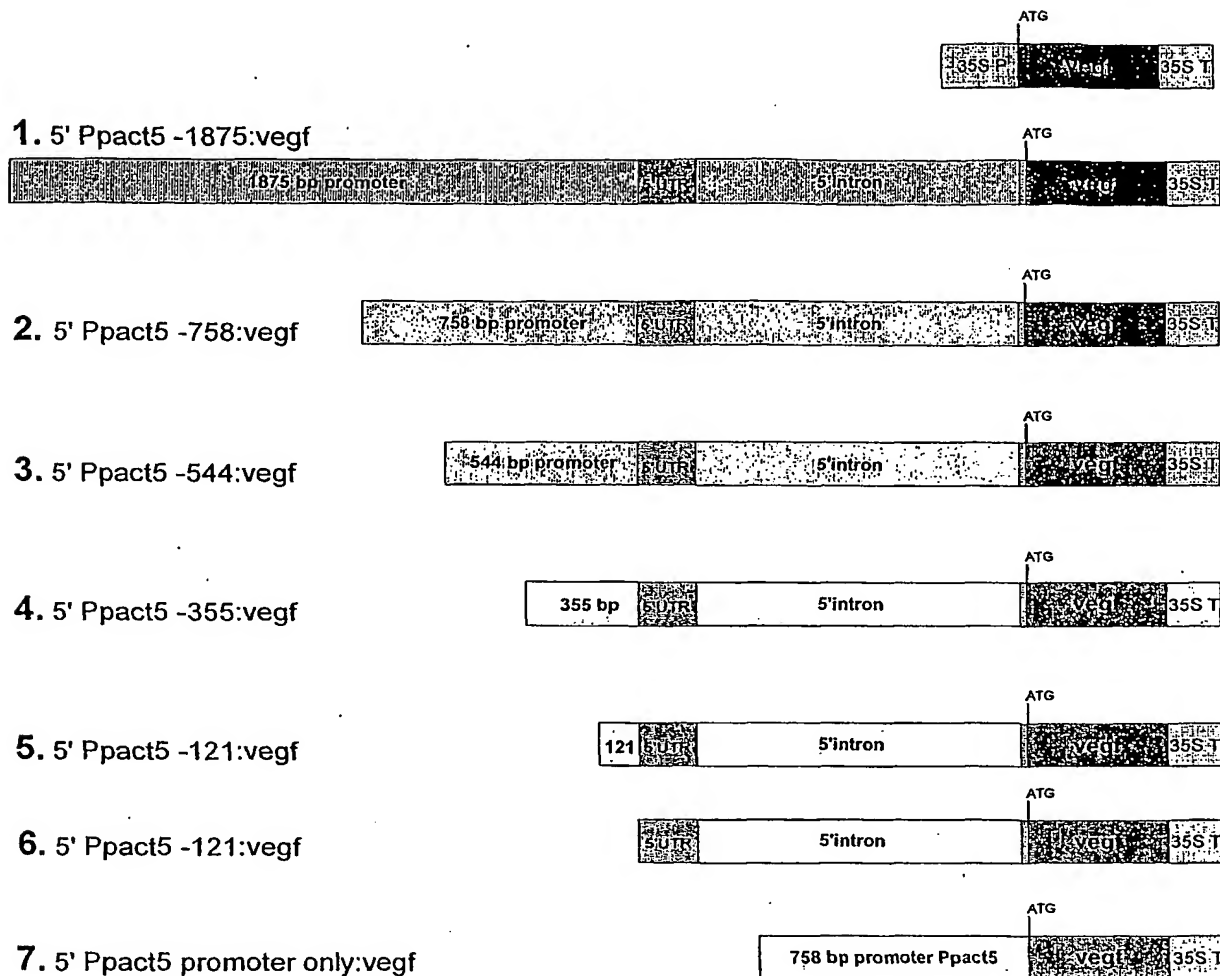
7. 5'Ppact3-81:vegf



8. 5'UTR:vegf



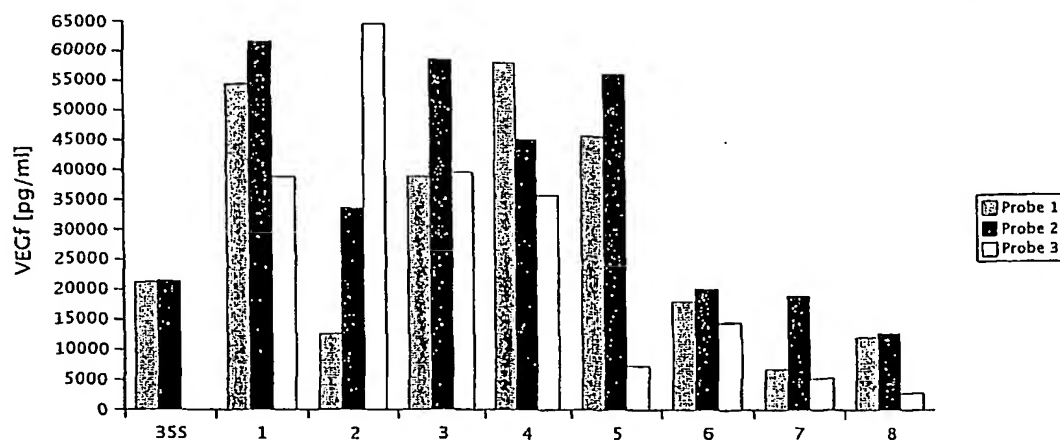
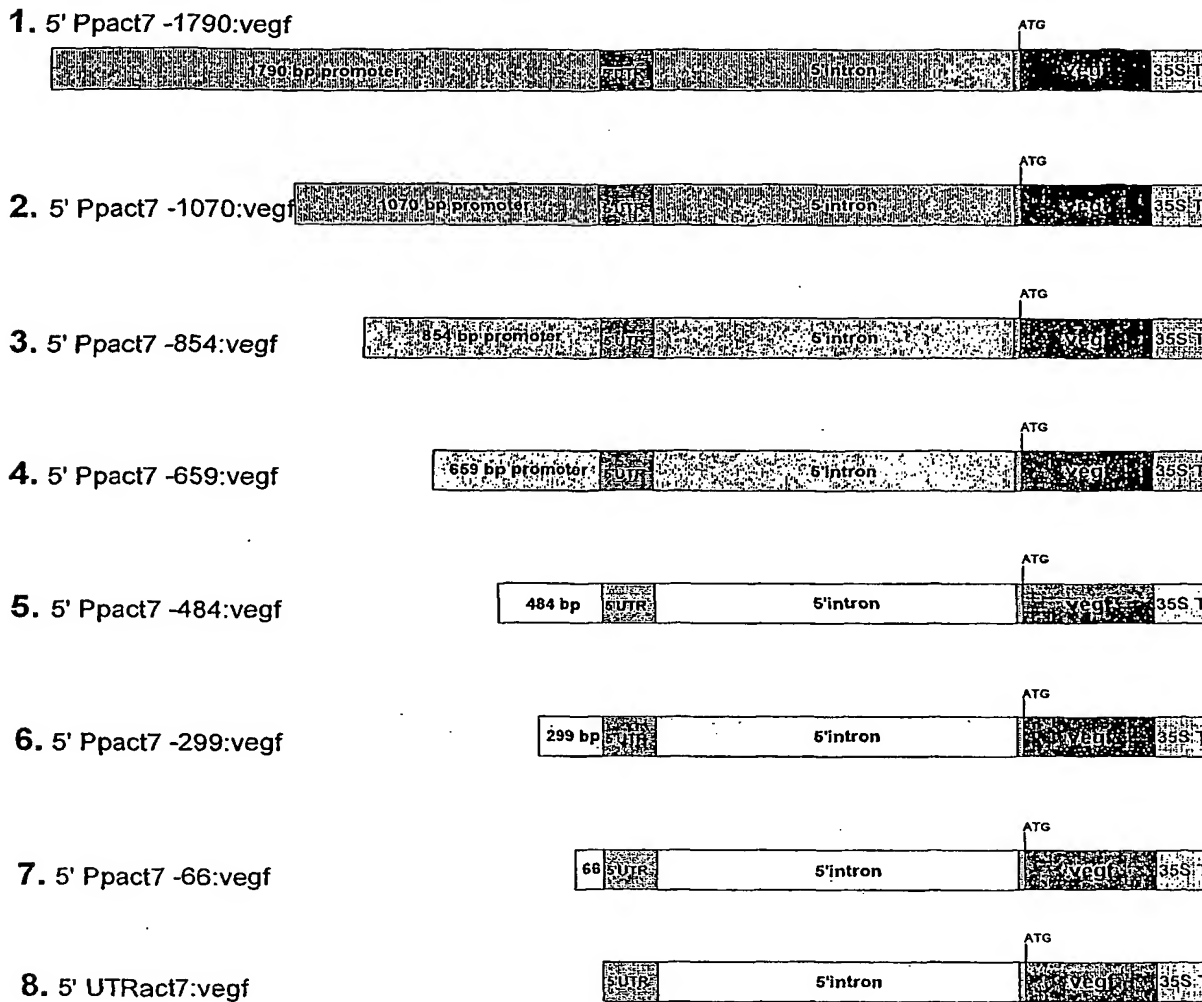
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**Fig. 16: Ppact5 promoter:vegf deletion constructs.**

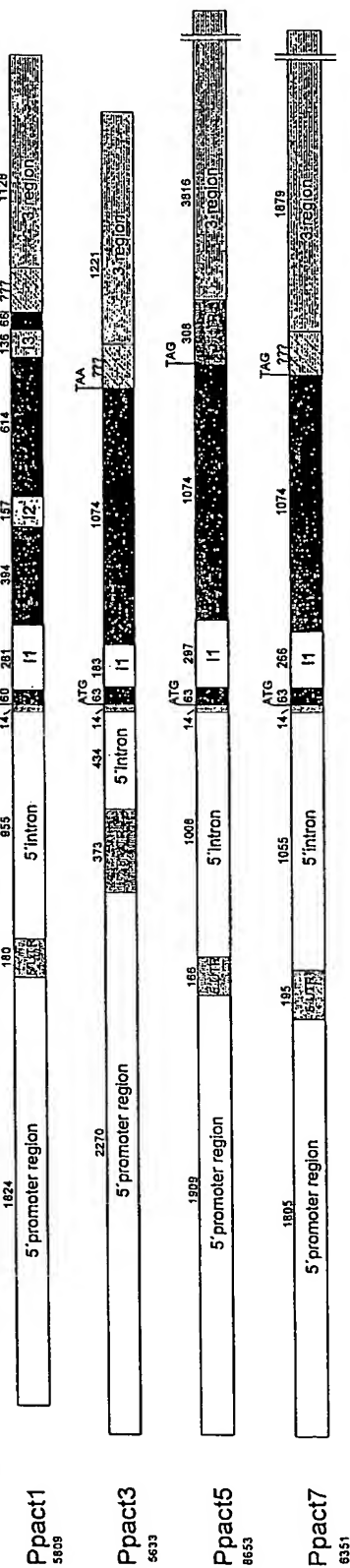
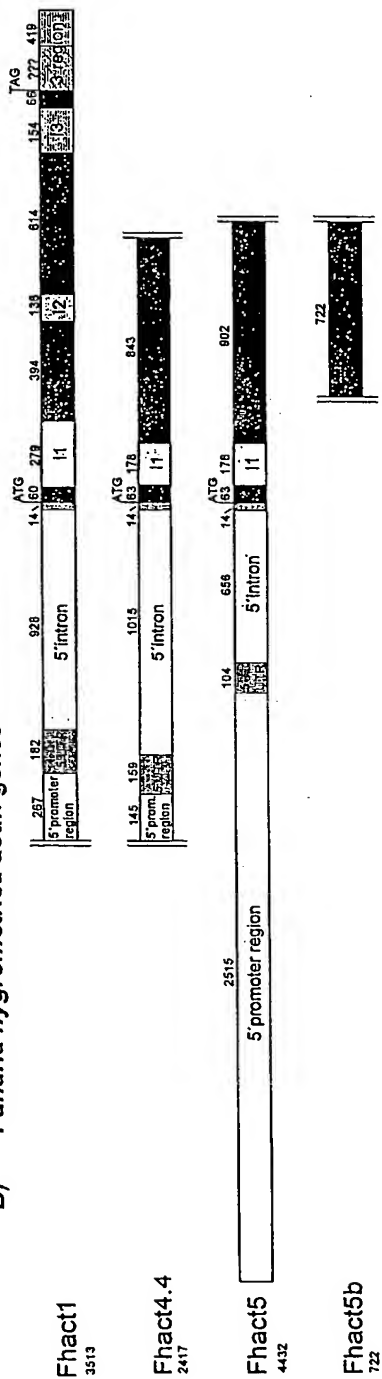
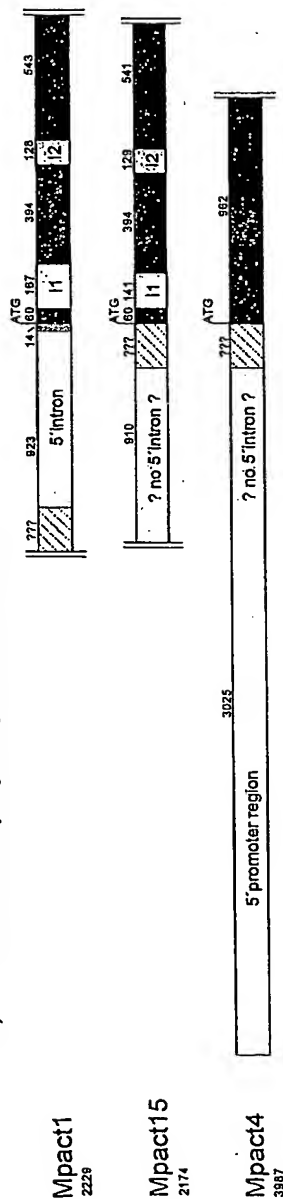


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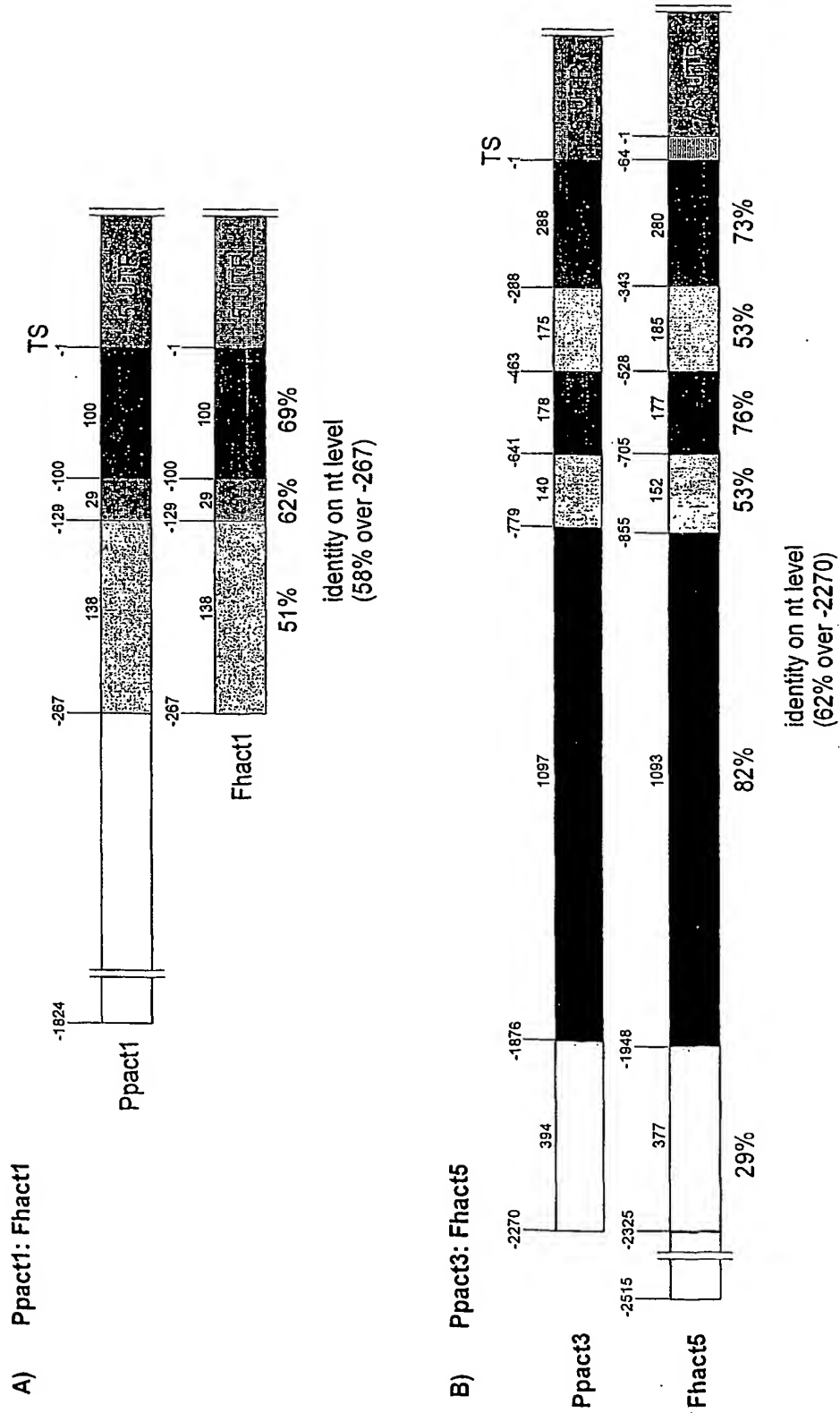
**Fig. 17: Ppact7 promoter:vegf deletion constructs.**



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**Fig.18****A) *Physcomitrella patens* actin genes****B) *Funaria hygrometrica* actin genes****C) *Marchantia polymorpha* actin genes**

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**Fig.: 19** Comparison of promoter sequences of homologous actin genes from  
*Physcomitrella patens* and *Funaria hygrometrica*